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MANOSKEY, JOSEPH D	
ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/673,382	DOSHI ET AL.	
	Examiner	Art Unit	
	Joseph D. Manoskey	2113	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,6-15,19-21,24 and 27-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *33 and 40* is/are allowed.

6)☒ Claim(s) *1,2,6-8,12-15,19-21,24,27-32 and 34-36* is/are rejected.

7)☒ Claim(s) *9-11 and 37-39* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/24/07 and 12/27/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 6, 8, 14, 15, 19, 21, 24, 27-32, and 34-36 are rejected under 35 U.S.C. 102(e) as being anticipated by Grover (US Patent 6,856,592).

3. As per claim 1, Grover discloses:

A method for establishing a restoration path for a service in a mesh network having a plurality of nodes interconnected by a plurality of links, the method comprising, at a regional manager for one or more transit nodes of the restoration path:

receiving a service data structure comprising an identification of each link and transit node in a primary path for the service (column 4 lines 63 - column 5 line 9: a model is established which determines capacity demands of each link in the mesh network); and

the service data structure is a primary path vector having a plurality of entries corresponding to the nodes and links in the network; and each entry of the primary path

vector identifies whether the corresponding node or link is part of the primary path for the service (column 6 lines 36-50: the origin destination (O-D) pair is established, and working bandwidth is calculated for each link on the path and Column 10 lines 14-26: the table includes the route, or "path", and includes the spans, or "nodes and links", and includes the spans used in the route);

wherein at least one entry of the primary path vector identifies that the corresponding node or link is not part of the primary path for the service (Grover teaches determining the working capacity of each span and then generating a set of eligible restoration paths, therefore when the subset was created from eligible paths non-eligible paths where identified in the whole set, See Column 5, lines 4-11) ; and

determining whether to reserve additional protection bandwidth, on an outgoing link incident to at least one of the one or more transit nodes of the restoration path, using the service data structure, wherein the outgoing link is part of the restoration path (column 5 lines 10-11, and 36-43: restoration routes are selected and spare capacity determined for each link).

4. As per claim 2, Grover discloses:

The invention of claim 1, further comprising receiving, at the regional manager, identification of the service, identification of the outgoing link, and bandwidth of the service (column 4 line 63 - column 5 line 9: a model provides identification of bandwidth required, identification of the link, and identification as primary service path).

5. As per claim 6, Grover discloses:

The invention of claim 1, wherein the primary path vector is a primary path node-link vector Vpnl (column 6 lines 36-50: the origin destination (O-D) pair is established, and working bandwidth is calculated for each link on the path and Column 10 lines 14-26: the table includes the route, or "path", and includes the spans, or "nodes and links", and includes the spans used in the route).

6. As per claim 8, Grover discloses:

The invention of claim 1, wherein:

the regional manager has a network data structure comprising, for each link in the network and each node or other link in the network, a representation of a minimum amount of protection bandwidth required to be reserved on said each link to restore service upon failure of said node or other link (column 9 lines 22-41: a "bi-criteria formulation" is calculated with a variable alpha set to an initial value, which calculates the optimal restoration routing for the network);

the regional manager determines, using the network and service data structures, whether the service requires the additional protection bandwidth to be reserved on the outgoing link of the transit node of the restoration path (column 9 lines 57-67; the calculation is repeated again using a different value for alpha if necessary to determine if the restoration routing requires a change); and

the regional manager updates the network data structure if any additional protection bandwidth is determined to be required for the service on the outgoing link

(column 9 lines 57-67: the method ends when the final value is calculated, and the network is adapted to provide spare capacity as needed).

7. As per claim 14, Grover discloses:

A regional manager in a mesh network having a plurality of nodes interconnected by a plurality of links, wherein:

the regional manager manages one or more transit nodes of a restoration path for a service in the mesh network (column 4 lines 5-18, 23-29: the network is a mesh network which manages primary and secondary routes for data); and

the regional manager is adapted to:

receive a service data structure comprising an identification of each link and transit node in a primary path for the service (column 4 lines 63 - column 5 line 9); and

the service data structure is a primary path vector having a plurality of entries corresponding to the nodes and links in the network; and each entry of the primary path vector identifies whether the corresponding node or link is part of the primary path for the service (column 6 lines 36-50: the origin destination (O-D) pair is established, and working bandwidth is calculated for each link on the path and Column 10 lines 14-26: the table includes the route, or "path", and includes the spans, or "nodes and links", and includes the spans used in the route);

wherein at least one entry of the primary path vector identifies that the corresponding node or link is not part of the primary path for the service (Grover teaches determining the working capacity of each span and then generating a set of

eligible restoration paths, therefore when the subset was created from eligible paths non-eligible paths where identified in the whole set, See Column 5, lines 4-11) ; and

determine whether to reserve additional protection bandwidth, on an outgoing link incident to at least one of the one or more transit nodes, using the service data structure, wherein the outgoing link is part of the restoration path (column 5 lines 10-11, and 36-43).

8. As per claim 15, Grover discloses:

The invention of claim 14, wherein the regional manager is further adapted to receive identification of the service, identification of the outgoing link, and bandwidth of the service (column 4 line 63 - column 5 line 9: a model provides identification of bandwidth required, identification of the link, and identification as primary service path).

9. As per claim 19, Grover discloses:

The invention of claim 14, wherein the primary path vector is a primary path node-link vector Vpnl (column 6 lines 36-50: the origin destination (O-D) pair is established, and working bandwidth is calculated for each link on the path and Column 10 lines 14-26: the table includes the route, or "path", and includes the spans, or "nodes and links", and includes the spans used in the route).

10. As per claim 26, Grover discloses:

The method of claim 25, wherein the step of determining ,is further based on a network data record for the link comprising a representation of a minimum amount of protection bandwidth required to be reserved on the link to service upon failure of each link and node in the mesh network (column 9 lines 22-41).

11. As per claim 27, Grover discloses:

The method of claim 1, further comprising reserving the additional protection bandwidth on the outgoing link, if the regional manager determines that any additional protection bandwidth is required (column 3 lines 43-45: the network is adapted to accommodate any addition of spare capacity if needed).

12. As per claim 28, Grover discloses:

The method of claim 27, further comprising transmitting from the regional manager information about the additional protection bandwidth for communication to each other node in the network (column 5 lines 50-56).

13. As per claim 29, Grover discloses:

The method of claim 14, further wherein the regional manager is further adapted to reserve the additional protection bandwidth on the outgoing link, if the regional manager determines that any additional protection bandwidth is required (column 3 lines 43-45: the network is adapted to accommodate any addition of spare capacity if needed); and

14. As per claim 30, Grover discloses:

The method of claim 29, wherein the regional manager is further adapted to transmit information about the additional protection bandwidth for communication to each other node in the network (column 5 lines 50-56).

15. As per claim 34, Grover discloses:

The method of claim 6, further comprising:

reserving the additional protection bandwidth on the outgoing link, if the regional manager determines that any additional protection bandwidth is required (column 3 lines 43-45: the network is adapted to accommodate any addition of spare capacity if needed); and

transmitting from the regional manager information about the additional protection bandwidth for communication to each other node in the network (column 5 lines 50-56).

16. As per claim 35, Grover discloses:

A method for establishing a restoration path for a service in a mesh network having a plurality of nodes interconnected by a plurality of links, the method comprising, at a regional manager for one or more transit nodes of the restoration path:

receiving a service data structure comprising an identification of each link and transit node in a primary path for the service (column 4 lines 63 - column 5 line 9: a

model is established which determines capacity demands of each link in the mesh network); and

the service data structure is a primary path vector having a plurality of entries corresponding to the nodes and links in the network; and each entry of the primary path vector identifies whether the corresponding node or link is part of the primary path for the service (column 6 lines 36-50: the origin destination (O-D) pair is established, and working bandwidth is calculated for each link on the path and Column 10 lines 14-26: the table includes the route, or "path", and includes the spans, or "nodes and links", and includes the spans used in the route); and

determining whether to reserve additional protection bandwidth, on an outgoing link incident to at least one of the one or more transit nodes of the restoration path, using the service data structure, wherein the outgoing link is part of the restoration path (column 5 lines 10-11, and 36-43: restoration routes are selected and spare capacity determined for each link).

17. As per claim 36, Grover discloses:

The invention of claim 35, wherein:

the regional manager has a network data structure comprising, for each link in the network and each node or other link in the network, a representation of a minimum amount of protection bandwidth required to be reserved on said each link to restore service upon failure of said node or other link (column 9 lines 22-41: a "bi-criteria

formulation" is calculated with a variable alpha set to an initial value, which calculates the optimal restoration routing for the network);

the regional manager determines, using the network and service data structures, whether the service requires the additional protection bandwidth to be reserved on the outgoing link of the transit node of the restoration path (column 9 lines 57-67; the calculation is repeated again using a different value for alpha if necessary to determine if the restoration routing requires a change); and

the regional manager updates the network data structure if any additional protection bandwidth is determined to be required for the service on the outgoing link (column 9 lines 57-67: the method ends when the final value is calculated, and the network is adapted to provide spare capacity as needed).

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

19. Claims 7 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grover (US Patent 6,856,592) in view of Cisco (Cisco's Packet over SONET/SDH (POS) Technology Support).

20. As per claim 7, Grover discloses:

The invention of claim 1, wherein the network is a mesh data network

Grover does not disclose:

[the network] transmits packetized data.

Cisco discloses a system which places the IP layer directly above the SONET layer, creating a packet-switching network on SONET infrastructure (page 1, column 2 lines 1-4 and figure 1). Cisco discloses that this enables a network to utilize its existing SONET architecture while maintaining quality of service over the network, and better accommodating growing network traffic (page 1, column 2 lines 1-7). Grover discloses that his system uses optical connections, such as DWDM or other optical network (column 4 lines 6-8, 18-21). Using packet of SONET system of Cisco would enable the administrator to use the existing optical network while maintaining the quality of service and traffic of the network. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to incorporate packet over SONET into the restoration route system of Grover, improving service quality while maintaining the optical network.

21. As per claim 20, Grover discloses:

The invention of claim 14, wherein the network is a mesh virtual-circuit data network

Grover does not disclose:

[the network] transmits packetized data.

Cisco discloses a system which places the IP layer directly above the SONET layer, creating a packet-switching network on SONET infrastructure (page 1, column 2 lines 1-4 and figure 1). Cisco discloses that this enables a network to utilize its existing SONET architecture while maintaining quality of service Over the network, and better accommodating growing network traffic (page 1, column 2 lines 1-7). Grover discloses that his system uses optical connections, such as DWDM or other optical network (column 4 lines 6-8, 18-21). Using packet of SONET system of Cisco would enable the administrator to use the existing optical network while maintaining the quality of service and traffic of the network. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to incorporate packet over SONET into the restoration route system of Grover, improving service quality while maintaining the optical network.

22. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grover (US Patent 6,856,592) in view of Mo (United States Patent Application Publication 2003/0037276).

23. As per claim 12, Grover does not disclose:

The invention of claim 1, wherein the receiving of a service data structure comprises supporting a signaling protocol interface.

Mo discloses a bandwidth reservation system which uses RSVP-TE protocol to recover a data processing unit on a network (Mo ¶ 4). Mo discloses that this system will enable a network to restore its original state, including recovered nodes and bandwidth

reservation without impacting network traffic (Mo ¶ 4-6). Grover also discloses that his invention seeks to allocate protection bandwidth to a network (Grover column 1 lines 15-25), even in cases of performance loss or degradation (Grover column 1 lines 25-33)). Using Mo's system would enable a user to do this without impacting traffic on the network, increasing the quality of service. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to incorporate RSVP-TE signaling protocol interface into the protection bandwidth system of Grover, increasing the quality of service of the network while maintaining protection bandwidth.

24. As per claim 13, Grover does not disclose:

The invention of claim 12, wherein the signaling protocol is reservation protocol with traffic engineering extensions (RSVP-TE).

Mo discloses a bandwidth reservation system which uses RSVP-TE protocol to recover a data processing unit on a network (Mo ¶ 4). Mo discloses that this system will enable a network to restore its original state, including recovered nodes and bandwidth reservation without impacting network traffic (Mo ¶ 4-6). Grover also discloses that his invention seeks to allocate protection bandwidth to a network (Grover column 1 lines 15-25), even in cases of performance loss or degradation (Grover column 1 lines 25-33)). Using Mo's system would enable a user to do this without impacting traffic on the network, increasing the quality of service. Therefore, it would have been obvious to One of ordinary skill in the art at the time of invention to incorporate RSVP-TE signaling

protocol interface into the protection bandwidth system of Grover, increasing the quality of service of the network while maintaining protection bandwidth.

25. Claims 21, 24, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grover in view of Stamatelakis et al., U.S. Patent App. Pub. 2003/0048749, hereinafter referred to as "Stamatelakis".

26. As per claim 21, Grover discloses:

A method for establishing a restoration path for a primary service path in a mesh network having a plurality of nodes interconnected by a plurality of links, , the method comprising:

receiving a service data record comprising an identification of each link and node in the primary service path (column 4 lines 63 - column 5 line 9); and

the service data structure is a primary path vector having a plurality of entries corresponding to the nodes and links in the network; and each entry of the primary path vector identifies whether the corresponding node or link is part of the primary path for the service (column 6 lines 36-50: the origin destination (O-D) pair is established, and working bandwidth is calculated for each link on the path and Column 10 lines 14-26: the table includes the route, or "path", and includes the spans, or "nodes and links", and includes the spans used in the route); and

determining for each link of the restoration path, based on the information in the service data record, whether or not to reserve additional protection bandwidth on the link of the restoration path (column 5 lines 10-11, and 36-43).

Grover does not teach wherein the restoration path has been previously calculated, however Grover does teach protection of traffic by providing restoration routes (See Grover, Column 1, lines 5-10). Stamatelakis teaches providing preconfiguration paths for the restoration of failed paths (See Stamatelakis, paragraph 0046). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the restoration method of Grover with the preconfiguration paths of Stamatelakis. This would have been obvious to one of ordinary skill in the art at the time of the invention because the preconfigured paths contribute to the flexibility to the restoration of the network (See Stamatelakis, paragraph 0046).

27. As per claim 24, Grover and Stamatelakis disclose:

The method of claim 21, wherein the step of determining is further based on a network data record for the link comprising a representation of a minimum amount of protection bandwidth required to be reserved on the link to service upon failure of each link and node in the mesh network (See Grover, column 9 lines 41-49: minimum protection bandwidth is calculated for each span [*i*] in the network).

28. As per claim 31, Grover and Stamatelakis disclose:

The method of claim 21, wherein the steps of receiving and determining are performed at each of the node of the restoration path (See Grover, column 4 lines 63 - column 5 line 9: a model is established which determines capacity demands of each link in the mesh network and column 5 lines 10-11, and 36-43: restoration routes are selected and spare capacity determined for each link).

29. As per claim 32, Grover and Stamatelakis disclose:

The method of claim 21, wherein the method is performed at one or more regional managers for each node of the restoration path (See Grover, column 4 lines 63 - column 5 line 9: a model is established which determines capacity demands of each link in the mesh network).

Allowable Subject Matter

30. Claims 33 and 40 are allowed.

31. Claims 9-11 and 37-39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

32. Concerning claims 1, 2, 6-15, 19, 20, and 27-30, the Applicant argues that Grover does not teach "wherein at least one entry of the primary path vector identifies

that the corresponding node or link is not part of the primary path for the service". It is noted that previously the Examiner agreed with the argument, however after further consideration the Examiner no longer agrees. Grover teaches determining the working capacity of each span and then generating a set of eligible restoration paths, therefore when the subset was created from eligible paths non-eligible paths where identified in the whole set, See Column 5, lines 4-11.

33. Applicant's arguments, see page 10 of amendment, filed 23 October 2007, with respect to the rejection(s) of claim(s) 21, 24, 31 and 32 under 35 U.S.C. 102(e) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of new found prior art see above rejection.

34. Concerning claims 35 and 36, Applicant argues that new claim 35 includes clarifying amendment and claim 1. The Examiner notes that new claim 35 appears to be a copy of previously rejected claim 1 with no newly added clarifying amendment.

Conclusion

35. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D. Manoskey whose telephone number is (571) 272-3648. The examiner can normally be reached on Mon.-Fri. (7:30am to 4pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (571) 272-3645. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JDM
December 29, 2007

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